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Использование студенческих разработок для улучшения образовательного процесса

В последнее время разрабатываются новые экспериментальные методы повышения качества образования, проводятся различные исследования в этом направлении. Одним из важных направлений является вопрос повышения интереса студентов к образовательному процессу. В статье рассматривается один из экспериментальных методов данного направления, который заключается в непосредственном вовлечение студентов в разработку учебных материалов.

The use of student development to improve the educational process

The question of improving the quality of education is extremely relevant nowadays. Today there are many different methods to achieve it. Various studies have been conducted to develop new experimental

methods for improving the quality of education. An important aspect of the research was the issue of increasing students' interest to educational process.

One of the experimental methods suggested making students a part of a working process. This method is a direct involvement of students in the development of teaching materials.

It's not a secret that in a student's community there is a trend when senior students help younger ones. As a rule, the older students simply give a ready-made work to the younger ones. Of course, in most cases such "help" has no benefits. However, an experience shows that there are people who seek to understand the educational materials. They use the work of senior students, analyze it and receive necessary information and knowledge. This approach is often better than actual training materials. This phenomenon can be explained by the fact that these students analyzed given to them work and tried to do better or at least to achieve the same result.

As a part of this work the control group of students that study the course of digital imaging has been given an application. This application has been developed in advance.

Thus, the work has also received practical application as a teaching material for the course of basic digital image processing.

The main objective of the work lies in the fact that students have successfully mastered the basics of computer digital image processing, and are able to apply knowledge in practice.

The developed application can serve as an educational manual on the basics of computer digital image processing due to the visibility of the algorithms.[3]

This application has the main basic image processing techniques. These methods are the most simple and demonstrative. It makes them ideal for consideration in the educational process. Implemented functions can be divided into several categories: contrast scaling, changing the histogram, imposition of noise, median filtering, smoothing filters and so on. [1,2]

Contrast zoom is the method of changing the brightness of each pixel linearly $g = fa + b$. (Figure 1). It is also embodied three different kinds of brightness sections that are vanishes, contrast and smoothing. [1, 2]

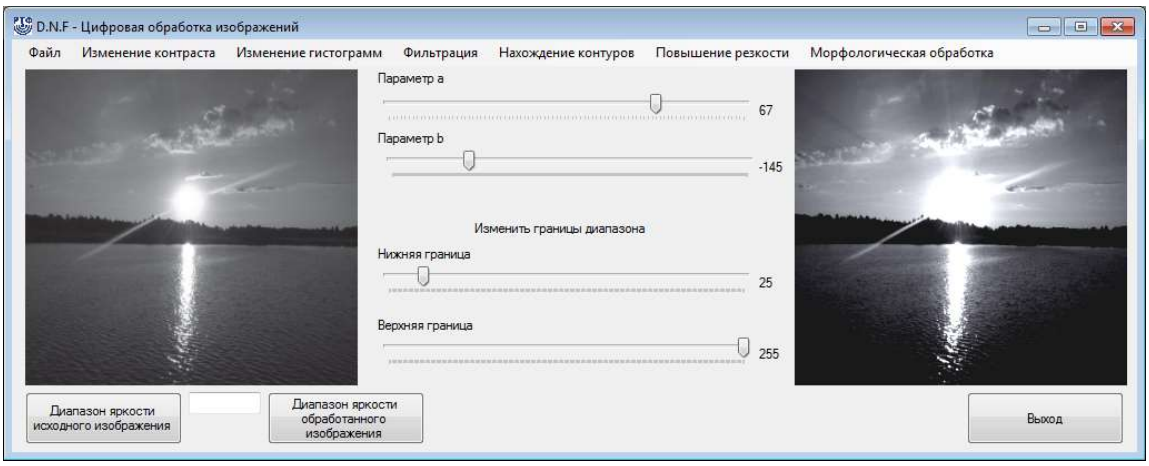

fig. 1 Contrast scaling

Change histograms it is an image transformation by changing the brightness of the pixels in accordance with the laws of different brightness frequency distribution. (Fig.2). [2]

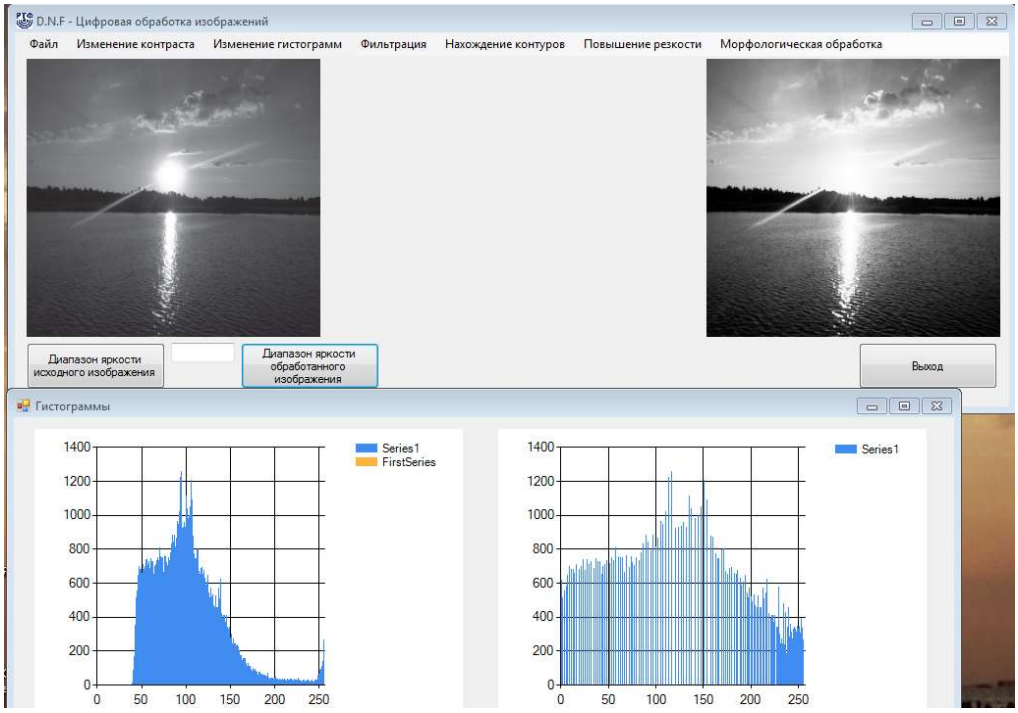

fig. 2. Changing the histogram

Smoothing Spatial Filters are spatial filters that change the pixel value depending on changes in the brightness of the light intensity of its neighboring pixels. (Figure 3) [2, 3]

To eliminate the gaps, as well as in pre-imaging the pattern recognition systems are often used morphological processing and processing with the matrices Laplace.[4]

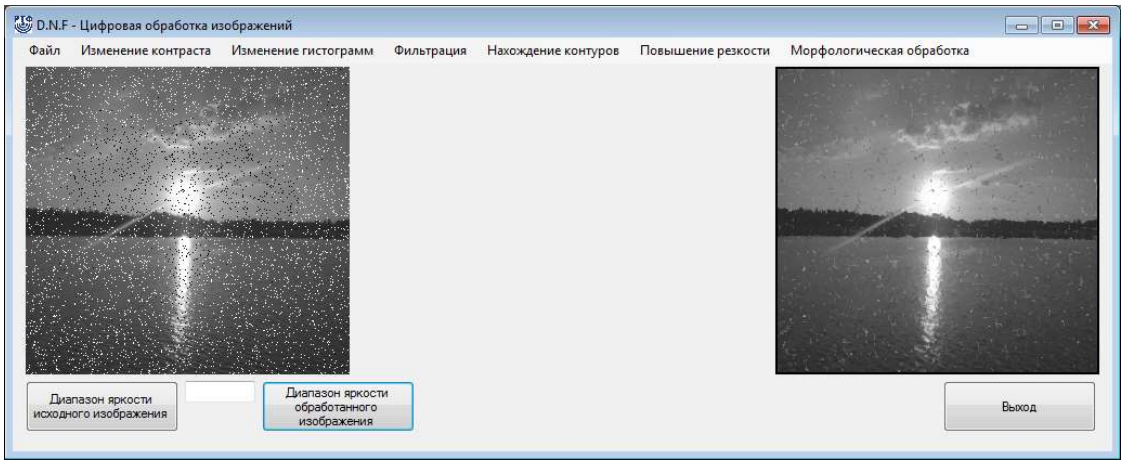

fig. 3.Smoothing spatial filter

Morphological processing is an information extraction method (borders, skeletons, convex hulls) from the original image. (Fig. 4) [1]

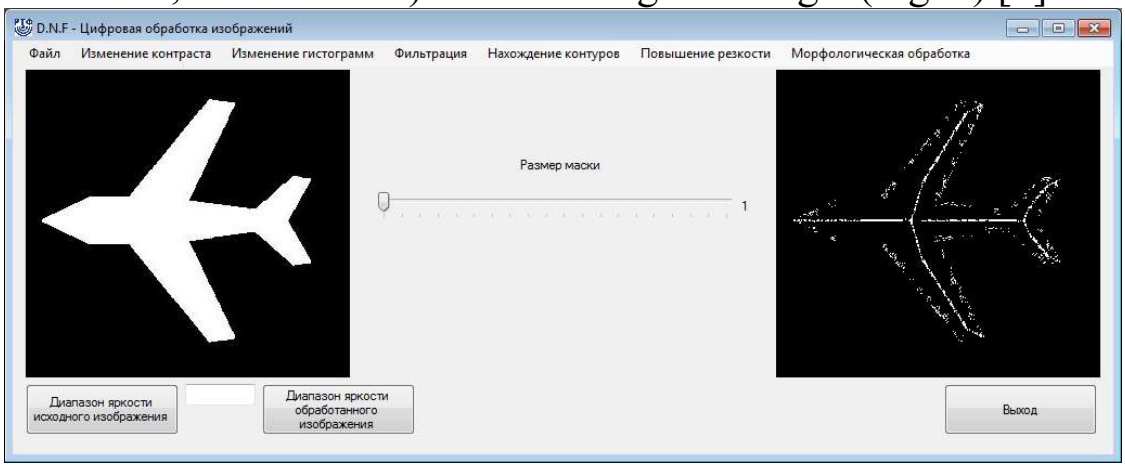

fig. 4 Morphological processing. Skeletonization

Most of the techniques are implemented with interactive input control parameters.

Students were asked to write their own software products, relying on the knowledge of the final result, as well as to improve it, making the optimization of the parameters for standard-quality software products, the volume of spent resources and time operations.

This research will be continued, and the results of the student's works at the end of the semester will be evaluated. The evaluation of student performance statistics will be shown in the discipline in comparison to two previous years.

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Умный дом и его возможности

Данная статья посвящена концепции «умный дом», которая все чаще начинает появляться в наших домах. Функции данной системы разнообразны, начиная от обычного оповещения на телефон, заканчивая системой автоматического контроля подходящего вам микроклимата. Главное достоинство данной концепции заключается в полной автоматизации управления вашего дома.

Smart House and its Possibilities

As you know, in today's world there is a process of automation going on to facilitate human life. This fact also touched our homes. All buildings consist of complex subsystems responsible for certain tasks that appear